## Message

From: Whittier, Robert [Robert.Whittier@doh.hawaii.gov]

**Sent**: 10/25/2015 11:12:29 PM

To: Takaba, Richard R [richard.takaba@doh.hawaii.gov]; Frazier, William Mark [william.frazier@doh.hawaii.gov];

Pallarino, Bob [Pallarino.Bob@epa.gov]; bussey.donald@epa.gov

**Subject**: Red Hill Groundwater Gradient

Attachments: Groundwater gradient in tunnel wells.pdf

Hi All,

During our conference call last Wednesday, Mark brought up that I have been doing some analysis that indicates little to no groundwater gradient going down the ridgeline of Red Hill. I have put the data on a somewhat presentable format and have attached it.

As the attachment states, this is not the final word on groundwater gradient in the Red Hill area. However, it does show that no good hydrogeological assessment has been done to date and that the area is poorly understood. The only explicit hydrogeologic assessment requirements in the SOW are the modeling and the monitoring wells. However, to support proper modeling (and monitoring well siting), the SOW implicitly requires a comprehensive hydro investigation. I hope that we can make that explicitly clear.

Thanks, Bob W.